

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

27. (currently amended) A downloading apparatus for a broadcast receiver, comprising:

a receiver which receives a broadcast signal having a video program signal and a control information signal;

a storage element which stores a control program, said control program controlling the operation of a video program corresponding to said video program signal, wherein the storage element further comprises

a random access memory (RAM) for temporarily storing a downloaded control program, and

a non-volatile random access memory (NVRAM), including

a first domain ~~for storing a version number of the control program,~~

a second domain for storing a ~~downloaded~~ control program and a ~~predetermined version number indicating a version of the downloaded program,~~

a third domain for storing the ~~control~~ a downloading program for controlling a download procedure, wherein during the download procedure the control program stored in the second domain is updated, and

a fourth domain for storing a bootstrap program, wherein the bootstrap program controls an initial boot routine, ~~the initial boot routine~~

~~including automatically updating the downloaded program when the
downloaded program is not complete~~

wherein the first domain stores one of a version number of the
control program stored in the second domain or a predetermined number
indicating that the download procedure for updating the control program in
the second domain was suspended due to a power failure or a signal
transmission error, and wherein the initial boot routine includes checking
whether or not a value stored in the first domain is the predetermined
number and, when the value is the predetermined number, automatically
updating the control program; and

a micro-controller for replacing said control program stored in the storage-
~~element~~ second domain with the downloaded control program temporarily stored in the
random access memory based on said control information signal[[,]] and the version
number of the control program, ~~and said predetermined version number.~~

28. (previously presented) The apparatus according to claim 27, wherein
said broadcast signal includes a packet identifier (PID) to identify a type of information
of the broadcast signal.

29-31. (canceled)

32. (previously presented) The apparatus according to claim 27, further comprising a signal processor which separates said control information signal from said broadcast signal.

33. (withdrawn) A downloading apparatus for a broadcast receiver, comprising:

- a receiver for receiving a broadcast signal having a video program signal and a control information signal representing a new control program;

- a first storage element for temporarily storing said control information signal representing the new control program;

- a second storage element for storing a control program controlling the operation of a video program corresponding to said video program signal and a predetermined version number indicating a version of the new control program;

- a controller for replacing the control program in the second storage element with the new control program based on said control information signal and said predetermined version number;

- a third storage element for backing up the control program before the replacing of the control program in the second storage element with the new control program.

34. (withdrawn) The apparatus according to claim 33, wherein said broadcast signal includes a packet identifier (PID) to identify said new program to be downloaded.



35. (withdrawn) The apparatus according to claim 33, wherein at least one of the first and second storage elements includes a RAM.

36. (withdrawn) The apparatus according to claim 33, wherein at least one of the first and second storage elements includes a flash memory.

37. (withdrawn) The apparatus according claim 33, further comprising a third storage element which stores said new program.

38. (withdrawn) A method for downloading a control program from a broadcast signal in a broadcast receiver, comprising:

storing a control program in a first domain of a memory;

storing a predetermined value corresponding to said stored control program in a second domain of the memory;

selecting a name of a control program to be downloaded;

separating a control program corresponding to said selected control program name from a broadcast signal;

backing up said stored control program in a third domain of a memory;

replacing said stored control program with said separated control program corresponding to said program name in said first domain of the memory; and

replacing said stored predetermined value with a version number corresponding to said replaced control program in the second domain of the memory.

39. (withdrawn) The method according to claim 38, wherein said broadcast signal includes a packet identifier (PID) to identify said name of the control program to be downloaded.

40. (withdrawn) The method according to claim 38, wherein the memory includes a RAM.

41. (withdrawn) The method according to claim 38, wherein the memory includes a flash memory.

42. (currently amended) A method for downloading a control program from a broadcast signal in a digital broadcast receiver, comprising:

~~examining a byte of a memory indicating a version of a control program stored in said memory during an initial boot routine; and~~

~~replacing the stored control program with a new control program from a broadcast signal when said examined byte includes a predetermined value, and processing said broadcast signal based on said control program stored in the memory when said examined byte fails to include the predetermined value.~~

starting a downloading program stored in a non-volatile random access memory;

downloading a new control program from the broadcast signal, and then temporarily storing the downloaded new control program in a volatile random access memory;

writing a predetermined value in a version domain of the non-volatile random access memory;
deleting a control program stored in the non-volatile random access memory;
writing the downloaded new control program stored in the volatile random access memory in the non-volatile random access memory;
writing a version number corresponding to the downloaded new control program in the version domain of the non-volatile random access memory;
rebooting the digital broadcast receiver;
examining the version domain of the non-volatile random access memory during an initial boot routine controlled by a bootstrap program; and
restarting the downloading program stored in the non-volatile random access memory for recovering the control program when the examined version domain of the non-volatile random access memory includes the predetermined value, and starting the control program stored in the non-volatile random access memory when said examined version domain of the non-volatile random access memory fails to include the predetermined value.

43-45. (canceled)

46. (currently amended) The method according to claim ~~[[43]]~~ 42, wherein the non-volatile random access memory includes:

a version ~~byte~~ domain storing one of said version number or the predetermined value; and

a ~~main~~-control program domain storing the control program.

47. (withdrawn) A method for downloading a control program from a broadcast signal in a broadcast receiver, comprising:

providing a name of a control program to be downloaded;

writing a predetermined valued in a first domain of a memory;

backing up a control program which is stored in a second domain of the memory in another memory;

deleting the control program which is stored in the second domain of the memory;

downloading a control program corresponding to said program name from a broadcast signal into said second domain of the memory;

replacing said predetermined value with a version number corresponding to said downloaded control program in the first domain of the memory.

48. (withdrawn) The method according to claim 47, further comprising processing the control program which is stored in said another memory, when said downloading is suspended due to an abnormal situation.

49. (withdrawn) The method according to claim 47, wherein said broadcast signal includes a packet identifier (PID) representing said control program name.

50. (withdrawn) The method according to claim 47, wherein at least one of the memory and said another memory includes a RAM.

51. (withdrawn) The method according to claim 47, wherein at least one of the memory and said another memory includes a flash memory.

52. (withdrawn) The method according to claim 48, wherein said processing includes recognizing said abnormal situation based on a predetermined value which is stored in the first domain of the memory.